

Winn Feline Foundation Progress Report

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The Evaluation of the Esophageal Transit of Tablets and Capsules in 30 Cats

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Doxycycline is a tetracycline antibiotic commonly used in cats to treat *Chlamydia* and other infections. Dr. Twedt and others reported on three cases of doxycycline tablet-induced esophagitis and stricture formation in cats in the March/April 2000 issue of the journal *Feline Practice*. It was suspected that the doxycycline tablets were retained in the esophagus of the cats for a period of time long enough to allow severe inflammation (esophagitis) to occur with resulting scar formation. This phenomenon is also well documented in humans, most commonly with doxycycline and non-steroidal anti-inflammatory drugs.

Scarring in the esophagus can cause a ring-like constriction (a stricture), making it hard for the cat to swallow food. Affected cats may be presented to veterinarians for difficulty swallowing and regurgitation within one to two weeks. The diagnosis of esophageal stricture is made by contrast x-rays using barium or with endoscopic examination of the esophagus. In severely affected cats, attempts must be made to open the stricture with balloon dilatation using an endoscope. In rare cases, risky surgical repair of the esophagus is needed.

The objective of this study was to evaluate the passage of tablets and capsules in the esophagus of cats when given either alone or followed by administration of water. The investigators used an imaging technique called fluoroscopy, which uses x-rays to generate live images. With fluoroscopy, it was possible to watch how long a tablet or capsule was retained in the cat's esophagus before it reached the stomach.

The cats used in the study were 30 normal health cats owned by the faculty, staff and students of Colorado State University Veterinary Teaching Hospital. Harmless barium tablets and capsules were used since they are easy to see using fluoroscopy. After each tablet or capsule was given to a study cat, the location of the tablet or capsule in the esophagus was noted at set intervals for up to 5 minutes. Then the study was repeated in each cat by giving the tablet or capsule followed by administration of 6.0 ml of water.

When tablets or capsules were given without any water, only 36.7% of them had entered the stomach at the five-minute point. But when tablets or capsules were followed by water, 100% had entered the stomach after 60 seconds. The investigators concluded that administering 6.0 mls of water after tablets or capsules will greatly decrease the risk of esophagitis and stricture formation and ensure that all of the medication enters the

stomach, which is essential for adequate dosing. Most household teaspoons hold about 5.0 ml of water. Therefore, it may be prudent for veterinarians to instruct owners to administer water to their cat after giving any tablet or capsule, but especially doxycycline.

For further reading:

Melendez, L., D. Twedt, et al. (2000). *Suspected doxycycline-induced esophagitis with esophageal stricture formation in three cats*. Feline Practice **28**(2): 10-12.

Westfall, D., D. Twedt, et al. (2001). *Evaluation of esophageal transit of tablets and capsules in 30 cats*. Journal Veterinary Internal Medicine **15**(5): 467-470.

Westfall, D., D. Twedt, et al. (2001). *Evaluation of the passage of tablets and capsules through the esophagus in cats* (abstract). Proceedings 19th American College of Veterinary Internal Medicine Forum, Denver, CO.